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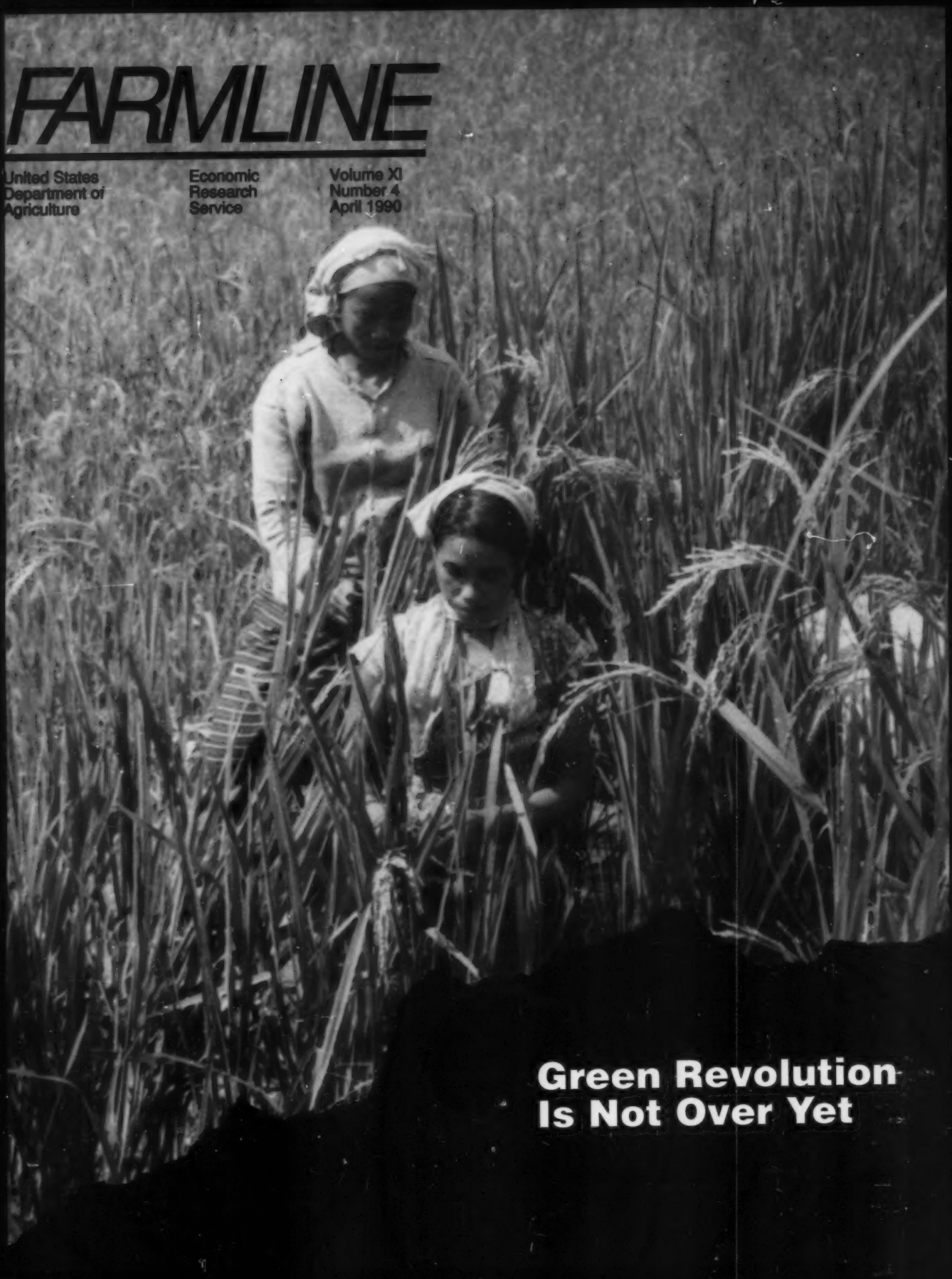

Green Revolution Is Not Over Yet

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PERSPECTIVES

AGRICULTURAL EXPORTS FROM THE UNITED STATES in fiscal 1990 are expected to be at a higher volume than in the year before, but the value will be slightly lower. The latest forecast, by USDA's Economic Research Service, is for an export value of $38.5 billion, $1.2 billion less than total value of farm exports in fiscal 1989, which ended September 30. The predicted income is $500 million more than was predicted in the previous forecast last December.

Agricultural imports to the United States are expected to be at about the same value as in fiscal 1989, $21.5 billion. Before the severe freeze in Florida and Texas devastated the fruit and vegetable growers last December, imports were expected to be about $500 million dollars less. Major beneficiaries of the freeze were the foreign producers of vegetables, fruit, and juices.

The surplus in the balance of agricultural trade will drop slightly, from $18.2 billion in fiscal 1989 to $17 billion this year. The decline in value is attributed to the lower prices anticipated for grains and oilseeds—enough of a change, the forecasters say, for the total value of agricultural trade to drop for the first time since fiscal 1986.

The good news is for coarse grains (feed grains). World demand appears to be slightly higher than expected, and the United States is seen as capturing a larger share of the export market, particularly for corn. Also in the coarse grain group are barley, oats, rye, sorghum, and related grain products. Expected export volume for the group is 66.5 million metric tons, up about 11 percent from the levels recorded for fiscal 1989. Corn export volume is predicted to reach 58 million metric tons, up about 15 percent. Forecast values are $7.3 billion for coarse grains as a group and $6.4 billion for corn alone. Compared with export values in 1989, the expected values are down $100 million for all the coarse grains, up $300 million for corn.

The shift in agricultural sales is largely the result of increased volume and lower prices for grains and oilseeds, which had been in reduced supply in 1988. Demand for high-value and consumer-oriented products, such as processed meats and fresh fruits and vegetables, is expected to dampen this year. The shift has been attributed in part to the slower growth among the developed nations, which account for two-thirds of world economic activity. Growth among the group as a whole was 3.4 percent in calendar 1989, compared with 4.3 percent in 1988, and it is expected to fall below 3 percent this year.

Public and private consumption as well as business investment were down last year among the developed nations, and the money supply tightened in both the United States and West Germany, raising interest rates. The change in the United States was enough to lower domestic consumption and investment activities, and the U.S. economy is expected to be weaker in 1990 than it was in 1989. If the change is sufficient to make consumers wary, they may change their eating habits. Revised ERS estimates on world agricultural supply and demand were scheduled to be published April 10.

—Al Veerhoff

FARMLINE

AGRICULTURE...NATURAL RESOURCES...RURAL DEVELOPMENT
Practical economic intelligence from USDA's Economic Research Service

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Green Revolution Is Not Over Yet

For the 1990's, food production in poor nations may get a bigger boost from technologies developed decades earlier than from emerging biotechnologies.

How effectively developing nations use these Green Revolution technologies—enhanced and extended by the newer biotechnologies—will help determine the future demand for U.S. food assistance.

What is already clear, however, is that "the full benefits of the Green Revolution have not been felt," says economist Mary Knudson of USDA's Economic Research Service.

The core of the revolution was the development and dissemination of sturdy and high-yielding varieties of wheat and rice in Mexico and Asia during the 1950's and 1960's. Other crops helped by the use of new plant germplasm sources and hybridization techniques were corn, sorghum, field beans, groundnuts, cassava, and potatoes. Moreover, the revolution referred to a battery of other technologies involving chemical inputs, irrigation, new tillage practices, and improved management techniques.

Many poor nations have yet to update their farming techniques or try new crop varieties.

From the first experiments, says Knudson, the revolution spread to become successful—sometimes spectacularly so—in a number of nations.

"High-yielding varieties of wheat have been widely adopted in Bangladesh, India, Nepal, Pakistan, Guatemala, Mexico, and Argentina," says Knudson. "Improved rice varieties have been adopted in much of Asia, and improved corn varieties are commonly used in the United States, Europe, South America, and some African countries."

Impressive Gains

Since the mid-1960's, average world yields have risen 65 percent for grains and 24 percent for roots and tubers, says Knudson's colleague, ERS economist Margot Anderson. In Asia, the gains were 80 percent and 57 percent, respectively. Yields also increased in Africa, but the improvements for grains were below the world average: The continent has a relatively small area under irrigation, and many of the new grain varieties require frequent watering.

Laws, Business Practices Slow Spread of Biotechnology

The breakthroughs of biotechnology are already becoming an accepted part of American agricultural practices, but the transfer of biotechnology around the world is often slowed—and sometimes stalled—by economic and legal issues.

The absence of patent protections in some developing countries, for example, can be a severe stumbling block to the transfer of needed technologies.

"Patent laws vary considerably across countries and products and can affect the domestic and international flow of technology," says ERS economist Margot Anderson. "For example, chemicals and chemical processes are not eligible for patent protection in India."

In fact, she says, tropical countries often refuse to join international patent agreements.

"Firms that develop technology are less likely to market their products in countries with weak patent laws," says Anderson's fellow researcher, ERS economist Mary Knudson. "This may be particularly true for biotechnologies, which are frequently developed within the private sector."

"Patents grant exclusive marketing rights to the patent holder for a specific period of time," adds Anderson. "In return, the patentholder is required to make the details of the innovation public. Although patents preclude the appropriation of a particular innovation for a certain length of time, publication of a design or formula may motivate research along similar lines."

The sharing of research is critical—and is being spurred by the participation of private interests.

"Recently, the private sector has become an important player in developing and transferring technologies," says Anderson. "Its participation will affect the development, adoption, and transfer of future technologies because different factors drive private-sector technology development than public-sector research."

The private-sector research usually focuses on patentable areas such as machinery, chemicals, and seeds, she says. Recent legal actions that have recognized patentability of new life forms have encouraged the private sector to develop emerging biotechnologies.

For the near future, poor countries are locked into relying largely on private firms in the industrialized world for the newest technologies.

"International technology transfer occurs because some countries lack the scientific expertise or research infrastructure required to conduct domestic research," Anderson says. "In the short run, it is frequently cheaper to import technology than to establish a domestic research program or production facility."

For the countries caught up in the Green Revolution the benefits swiftly swept beyond the farm sector in the form of low-priced food for consumers.

Some countries not only became more self-sufficient in food production but also were able to achieve more consistent output, expand their exports, and raise per capita income, Anderson says.

These benefits were not universal, however. Many countries were left behind in the wake of the Green Revolution.

"Due to differences in farming systems, climate, soils, and institutions, benefits were spread unevenly among countries," says Anderson. "Considerable potential for regions bypassed by the first round of high-yielding varieties exists."

The emphasis of these technologies was itself a factor in limiting the reach of the revolution.

"The Green Revolution has been criticized for encouraging input-intensive agriculture, neglecting locally important crops, and bypassing severely impoverished regions," says Knudson. "In addition, some critics argue that Green Revolution-type technology is more accessible to successful, large farmers who adopt these methods at a faster rate than smaller farmers."

The technology was not applied to some crops, such as millet, and to some areas, such as sub-Saharan Africa, which lacked research facilities and irrigation systems, Knudson says. "Also, the rainfall drylands where agricultural production is highly uncertain, in such places as sub-Saharan Africa, were studied less than more fertile areas were."

Some of these problems are being overcome, Knudson says.

"Improved hybrids of millet and sorghum were developed for the semiarid areas of India during the 1960's and by the 1980's had spread widely," she says. "Some hybrids have recently been adopted in Africa and have resulted in yield increases for these two important staple crops."

Moreover, "demand for U.S. hybrid corn seed in South America is also growing. Hybridization research by several private and public research centers has recently led to new, high-yielding rice varieties suited for temperate China, and to a relatively new crop, triticale, which allows cool and acid soil areas to grow grain that formerly could not."

Crop varieties more tolerant of aluminum and drought are projected to be released and to expand crops to other areas, Knudson says. For example, wheat varieties are being developed suitable for the tropics. Soils in many tropical areas contain traces of soluble aluminum that bar the cultivation of crops.

Even so, says Anderson, "these countries can benefit only if the proper incentives and required inputs, like fertilizer, are available. The countries that are likely to profit most are East Asian countries, particularly China, because they have more marketlike incentives that promote agricultural research and distribute the results."

Other nations will need help in order to realize further gains.

"Many nations can't afford to invest in farm research," says Knudson. "African nations, in particular, need to invest in agricultural research, water resource development, input production and distribution systems, grain marketing, and storage facilities. However, some increased research activity will come from a growing private sector."

Knudson notes that "these crops and regions may offer smaller markets and sharper agronomic challenges, but biotechnology offers possible solutions."

Joining Technologies

In fact, linking the old with the new—the Green Revolution and emerging biotechnologies—holds out the promise of sustaining agricultural growth in the world.

Conventional farming technologies focus on increasing output per unit of input (land, labor, and capital) in a specific commodity. Often these technologies, as the Green

Revolution has shown, are interrelated. Yields of wheat, rice, corn, beans, cassava, sorghum, potatoes, and pearl millet continue to improve. New strains developed through genetic manipulation, on the other hand, may increase yields, expand the production area for some crops, stabilize yield under drought and heat conditions, and provide resistance to disease and insects.

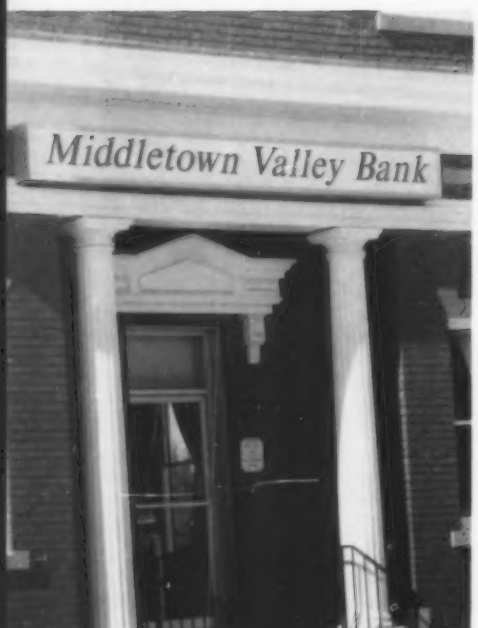
"World agriculture operates at several technological levels simultaneously," Anderson says, "depending on the resource availabilities and costs." Rice yields, for example, range from about 2 tons per acre to more than 9.5 tons per acre.

"The lessons from the Green Revolution demonstrate the effect appropriate technology and good institutional infrastructures have on technology transfer," says Knudson. "The impact of technology depends on a country's ability to direct research and development and distribute technology."

She adds that while "the gains in agriculture in some areas are lagging behind food demand and population pressure, there will be continued technological improvements in crops and livestock that should be widely adopted and should foster continued agricultural productivity increases." □

[*Based on information provided by economists Mary Knudson and Margot Anderson of the Resource and Technology Division, Economic Research Service.*]

FmHA Loan Policies Are Up for Review



Five years after Congress required the Farmers Home Administration (FmHA) to put more emphasis on guaranteeing farm loans by commercial lenders than on lending directly to farmers, federal legislators are reexamining the lending-policy change.

Farm programs are under review this year because many—excluding FmHA's—will expire, and lawmakers are preparing an omnibus farm bill to replace the Farm Security Act of 1985. Their concerns about FmHA have centered on how extensively the agency should provide credit assistance through loan guarantees and how the guarantees can best be provided.

Since 1985, use of loan guarantees has fallen short of expectations.

FmHA is the federal government's largest direct lender. Through some 2,200 offices, it assists some of the nation's poorest credit risks among farmers and thus plays an important role in providing rural America with affordable credit. Since 1972, the agency has had the authority to guarantee loans to farmers by cooperative and commercial lenders. That practice began to rise in the early 1980's, and it zoomed when the Food Security Act mandated that FmHA focus its delivery of credit assistance through the use of guaranteed loans. Now the program makes up more than half of FmHA's annual loan obligations, says economist Steve Koenig of USDA's Economic Research Service.

Loan guarantees grew from about $71 million in fiscal 1983 to $1.6 billion in 1986. While the total amount of guarantees has not increased since then, Koenig says, the guarantees have outpaced the agency's direct loan activity. Loans issued and administered directly by FmHA dropped from $4.8 billion in 1985 to $1.0 billion in 1989.

The shift to greater reliance on loan guarantees has not come without some problems. Delinquency and losses on guarantee loans have increased somewhat and lenders' use of the program has not met expectations. The amount of loan guarantees issued each year has been less than what Congress has authorized. In fiscal 1989 only 35 percent of the amount authorized was obligated.

Furthermore, FmHA loan guarantees may not serve the most needy farmers. Farmers receiving loan guarantees tend to be more creditworthy than direct borrowers. Some farmers can have difficulty finding private lenders who are willing to make loans even with federal guarantees, says the economist.

Lowering Federal Costs

Koenig says that Congress mandated the shift to loan guarantees to reduce federal credit costs and to help FmHA concentrate on managing its direct loans. A variety of other factors also caused the cutback in direct lending.

Federal farm programs and a reviving farm economy, for example, pushed up farmers' incomes and lowered their credit needs. Payments to farmers—from the various crop programs, the Conservation Reserve Program, and the Dairy Termination Program—increased from about $8 billion in 1985 to nearly $17 billion in 1987. Lower farm operating expenses helped cut the need for credit as did a growing farmer wariness toward holding debt.

Koenig says that the guarantee program should appeal to lenders because they can recover up to 90 percent of any loss suffered on a defaulted loan. This reduction in the risk of lending money allows lenders to continue financing a farmer during periods of economic stress. Also, through an inter-

During 1980's, Loan Guarantees Soared at FmHA

Fiscal Year	Total Obligations	Guarantees	Share of Total
1980	$6.3 bil.	$163 mil.	3%
1981	8.1 bil.	128 mil.	2%
1982	4.1 bil.	51 mil.	1%
1983	3.1 bil.	71 mil.	2%
1884	4.4 bil.	443 mil.	10%
1985	5.9 bil.	1.2 bil.	20%
1986	4.4 bil.	1.6 bil.	36%
1987	3.1 bil.	1.6 bil.	51%
1988	2.3 bil.	1.3 bil.	54%
1989	2.2 bil.	1.2 bil.	53%

Source: FmHA

Credit Program Designed for the Farmer

The Farmers Home Administration (FmHA) guaranteed-loan program helps farmers obtain commercial credit for a variety of purposes: farm ownership loans to buy and improve farmland and buildings, farm operating loans to purchase machinery and livestock or assist with annual operating expenses, and soil and water loans to encourage resource conservation and development. Operating lines of credit can also be guaranteed, says ERS economist Steve Koenig.

FmHA charges lenders 1 percent of the loan's value to guarantee a loan, but participants may pass the fee on to their customers. In return, FmHA agrees to guarantee repayment of up to 90 percent of any loss of the loan principal and interest if the farmer defaults. The lenders must negotiate and service the loans as they would other loans, granting them flexibility in meeting their customers' needs. For example, a lender can adjust the payment schedule to the borrower's ability to repay. A lender can also offer lower interest rates on loans by participating in FmHA's Interest Buydown Program. Under the program, FmHA matches interest rate reductions made by participating guarantee lenders, up to 2 percentage points.

Farmers obtain FmHA-guaranteed loans by applying for them through a participating lender. A farmer seeking financing for the planting of spring crops or the purchase of feeder cattle, for example, can obtain up to $400,000 in guaranteed operating loans. A borrower interested in purchasing land or improving some facilities can receive up to $300,000 in guaranteed farm ownership loans.

est-rate buydown program, lenders can assist borrowers with temporary cash flow problems by receiving matching interest-rate reductions from FmHA.

The guaranteed portion does not count against a commercial bank's legal lending limit, and thus the bank can issue more loans. Moreover, lenders can recover liquidity—more money to lend to farmers—by selling the guaranteed portion of the loans through secondary credit markets.

Koenig says lender participation in the guarantee program is fairly broad, although most of the guaranteed loans appear to have been issued by private lenders seeking financing for existing, credit-risky borrowers. He says 2,274 agricultural lenders issued a total of 8,247 FmHA guaranteed loans in the fiscal year ending September 30, 1988.

Commercial farm banks were the biggest group of participants, with 1 out of every 3 farm banks issuing at least one FmHA guaranteed loan. Banks accounted for 80 percent of FmHA's loan guarantees in fiscal 1988. The Farm Credit System (FCS)—including the Production Credit Associations, which finance farm operations, and the Federal Land Banks, which issue loans for farm ownership—was the next biggest player. About half of the FCS institutions were involved in 1988. They issued about 18 percent of the guaranteed loans. Credit unions and savings and loan associations also made loans, but they were active only in a few local markets, Koenig adds.

The transition to FmHA loan guarantees has had some problems. First, only 56 percent of the rural counties in this country

Commercial Banks, Followed by Farm Credit Lenders, Were the Biggest Issuers of FmHA Guranteed Loans

Type of Loan	Commercial Banks	Farm Credit System Lenders	Savings and Loans	Credit Unions
		Firms issuing one or more loans		
Farm Ownership	668	92	10	1
Farm Operating	1,819	139	8	6
Lines of Credit	1,175	98	5	4
Total	2,504	186	18	6
		Number of loans		
Farm Ownership	967	213	12	1
Farm Operating	5,645	1,279	11	11
Lines of Credit	2,947	566	5	9
Total	6,612	1,492	23	12

Agency Can Trace Its Origins to Great Depression Era

The original mission of the Farmers Home Administration, to provide temporary supervised credit to economically disadvantaged farmers, dates back to the social adjustment programs of the Franklin D. Roosevelt Administration, explains ERS economist Steve Koenig.

For the two decades after FmHA was created in 1946, the agency concentrated on making small supervised loans to purchase farms, farm equipment and livestock, or to finance annual operating expenses. Its emergency loan program helped farmers recover from natural disasters.

Between the 1970's and the early 1980's FmHA was severely tested in remaining on its original course. The lending goal was broadened from helping disadvantaged farmers to keeping established farmers in business. Congress added new programs, relaxed eligibility, loosened lending rules, and greatly increased annual lending authority. These changes widened FmHA's role to include a much greater segment of the farm population. Family farm corporations became eligible borrowers. It became easier to obtain multiple FmHA loans, and open-ended emergency loans increased FmHA indebtedness for some farmers into the millions, says Koenig. FmHA's share of total farm indebtedness increased from 5 percent to 16 percent from the mid-1970's to the mid-1980's.

To rein costs and move back towards the agency's original mission, the 1985 farm bill shifted the FmHA emphasis from direct lending to loan guarantees. The guarantee program is meant both to assist FmHA borrowers to move to private credit sources, and to help other less creditworthy farmers.

1932 Reconstruction Finance Corporation established to meet emergency credit needs. Twelve Regional Agricultural Credit Corporations organized to provide operating loans to farmers and ranchers lacking credit.

1934 Rural Rehabilitation Division of the Federal Emergency Relief Administration created to make loans to destitute farm families.

1935 The Resettlement Administration—forerunner to the Farmers Home Administration (FmHA)—created to help Depression-stricken farmers. The supervised-loan program provided credit based on plans that stressed good farming practices.

1937 Bankhead-Jones Farm Tenant Act authorized loans to tenant farmers so they could purchase their own farms. The Farm Security Administration (FSA) replaced the Resettlement Administration to make rehabilitation and ownership loans to farmers unable to obtain credit elsewhere.

1946 Farmers Home Administration Act restructured FSA and consolidated the Emergency Crop and Feed Loan Programs. The agency could make direct loans and insure loans made by banks, other agencies, and individuals.

1961 Consolidated Farmers Home Administration Act raised farm ownership loan limits to $60,000, and farm operating loan limits to $35,000.

1970 FmHA increased its cooperation with other farm lenders by accepting secondary liens.

1971 Limits for farm ownership loans raised to $100,000.

1972 Congress authorized the agency to use loan guarantees. The Emergency Loan Program was liberalized after Hurricane Agnes caused extensive damage in the Northeast, but the program was suspended after costs quickly reached $550 million. Limits for farm operating loans went up to $50,000.

1973 Emergency Disaster loan program reinstated, but loans were issued on a fully payable basis rather than under the liberalized 1972 program.

1974 Emergency Livestock Credit Act authorized FmHA to guarantee credit to livestock and poultry producers experiencing financial stress because of failing commodity prices.

were served by banks participating in the guarantee program during 1988. Koenig says producers in some areas of the country may have trouble obtaining credit because loan guarantees are not readily available.

Second, contrary to expectations, few FmHA borrowers with outstanding direct loans have refinanced with private credit or guaranteed loans. Koenig adds that many of these borrowers are in such poor financial shape that private lenders are reluctant to refinance such borrowers, even with a 90-percent loan guarantee. If the government wants to ensure that these producers remain in farming, it will have to continue to provide them some amount of assistance through direct loans, he says.

Few financially strong FmHA borrowers have made the switch because guaranteed loans would cost more and have tougher qualification requirements. In addition, farmers may fear that in event of a default, a commercial lender would be more likely to foreclose on a borrower than would FmHA. (Until last November, a class-action lawsuit had blocked FmHA foreclosures for most of the last 7 years.)

1976 FmHA's outstanding direct farm loan volume reached $5 billion.

1978 Emergency Agricultural Credit Adjustment Act authorized Economic Emergency loans or loan guarantees of up to $400,000 to hard pressed farmers. The act also expanded eligibility to family corporations, cooperatives, and partnerships; linked interest to the government's cost of borrowing money; and increased loan limits to $200,000 for insured and $300,000 for guaranteed farm real estate loans and $100,000 for insured and $200,000 for guaranteed farm operating loans.

1981 Annual direct farm loan lending peaks at $8 billion, with $6.3 billion loaned under emergency credit programs. During the first half of the 1980's, FmHA saw dramatic growth among its delinquent borrowers, especially under emergency programs. Unlike other farm lenders, FmHA did not write off its bad loans. Consequently, losses piled up.

1984 Emergency Agricultural Credit Act broadened eligibility for disaster loans. Loan limits for operating loans were doubled and repayment periods could be rescheduled for up to 15 years. A 1-year credit initiative allowed a portion of the debt to be set aside interest free for borrowers who were good managers but in severe financial difficulty. A second initiative offered interest rate writedowns and emergency assistance to nonborrower farmers. The Economic Emergency Program was terminated.

1985 Food Security Act extended farm operating loan eligibility, but limited emergency loans to family farms. It mandated that the agency focus on guaranteeing farm loans. An interest rate reduction program was introduced for loan guarantees. Farm borrowers were given new rights such as leaseback and buyback of lost farms.

1986 Direct outstanding loans peak at $28 billion, while delinquent loans reach $7 billion.

1987 Congress enacted the Agricultural Credit Act, which gave FmHA tools to service delinquent loans and help farmers to remain in farming. It gave farmers powerful rights as borrowers and required FmHA to restructure delinquent farm loans, including writing down a borrower's debt if that action would cost the government less than liquidating the loan. The act also required the agency to set up a secondary market for the sale of FmHA-guaranteed loans.

1989 In September, FmHA reported $8 billion in delinquent direct farm loans and $3.2 billion in writeoffs for the year.

Third, participating lenders tend to use the guarantee programs to help their current borrowers rather than to finance new customers, such as beginning farmers. If FmHA's direct lending is pared further, these high risk farmers could face less access to credit without a well working guarantee program.

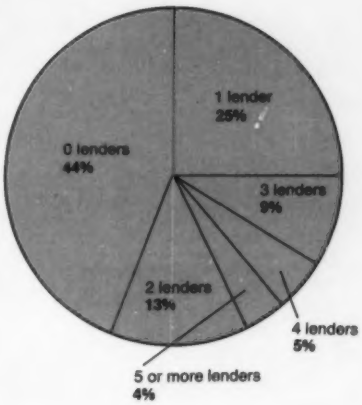
Finally, some lenders cite delays in processing applications and cumbersome administrative procedures as hindering participation in the guarantee program. Many lenders remain unaware of the advantages loan guarantees provide them and their farm customers, Koenig says.

Widening the availability of loan guarantees is one of the issues Congress is expected to address in the next farm bill. Koenig says further incentives may be given to lenders to encourage greater program participation. With greater participation, lenders will benefit from the reduced financial risk, and more guaranteed credit will be available to needy farmers. The overall credit market may strengthen because experienced private lenders will be more effective both in selecting financially sound borrowers and issuing loans that more closely mirror market conditions.□

[Based on information provided by Steve Koenig, Agriculture and Rural Economy Division, Economic Research Service.]

Not All Rural Counties Were Equally Served by the Guarantee Program

Percent of counties
with number of participating lenders:



Total number of rural counties with farmers participating in the program: **2,383**
Source: FmHA

Farmline's 10-Year History: A Chronicle of Hectic Times

How would you describe U.S. agriculture in the 1980's?

Volatile? Hectic? Nerve-racking? It was perhaps the worst of times—and the best.

At various times in the 1980's, this country's farm sector experienced such highs and lows as:

- The worst farm recession in 50 years.
- Record high farm income.
- The most devastating drought in half a century.
- A boom in exports.
- The largest accumulation of farm debt on record.
- An epidemic of farm bankruptcies.
- A widespread melting away of assets.
- A strong 3-year recovery in income and asset growth to end the decade.

Of course, some parts of the farm economy did better than others. A few saw mostly good times and others mostly bad.

Those 10 years also were the first 10 years of *Farmline* magazine. The first issue came off the press in April 1980. Obviously, it was a fascinating 10 years for the writers, editors, and artists who have produced the more than 110 issues of the magazine.

Farmline chronicled and analyzed the turmoil and progress of the 1980's, even tried to predict the future. It did so because its mission is to publish the highlights of research and analysis by the economists and other specialists of USDA's Economic Research Service.

The magazine has sought to provide its readers with easy-to-use economic information.

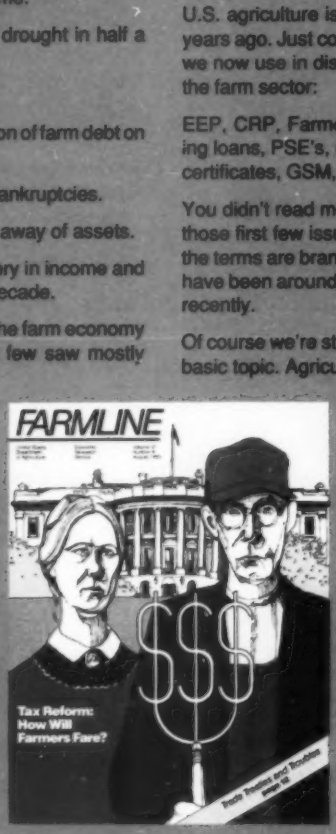
U.S. agriculture is much changed from 10 years ago. Just consider some of the terms we now use in discussing what goes on in the farm sector:

EEP, CRP, Farmer Mac, biotech, marketing loans, PSE's, FTA, TEA, LISA, generic certificates, GSM, bST, GATT, FCRS.

You didn't read much about such things in those first few issues of *Farmline*. Many of the terms are brand new since 1980. Some have been around but were little noted until recently.

Of course we're still writing about the same basic topic. Agriculture includes crops and animals, farmers and ranchers, land and weather. That's what we are concerned with here at *Farmline*.

Recall a few facts and figures from the 1980's:



Farmland values hit a record high of $823 per acre nationwide in 1982, lost one-third of that over the next 5 years, then began a recovery that recouped nearly 20 percent of the loss in 2 years, boosting the national average to $597 by 1989. Some states experienced much greater extremes than the averages.

Those numbers are one reflection of the farm recession—which was closely tied to international conditions. One of the major trends of the 1980's was the globalization of U.S. agriculture. With some 30 percent of U.S. farm production going overseas, economic conditions in far-off corners of the world often have as much effect on U.S. farmers' well-being as conditions here at home.

Economic Up and Downs

This country exported 163 million tons of farm products in 1980 but only 110 million tons in 1986. The value of the exports was almost $14 billion less in 1986 than in 1980. Most of the loss has been made up by now.

Total U.S. farm debt was $153.3 billion in 1987, more than $25 billion less than in 1980. U.S. agriculture's assets fell from $1.1 trillion in 1980 to $845 billion in 1985.

Net farm income, however, was $22 billion in 1980 and about $50 billion in 1989.

Government programs and policies of the 1985 Food Security Act helped the farm sector make it through the hard times, many officials believe. The cost was substantial. Direct government payments to farmers ranged between $10 billion and $16.7 billion annually during the last 4 years of the 1980's.

The past decade saw the continuation of trends toward fewer farms, larger farms (although this trend may be slowing), and more off-farm jobs for farmers.

Farmline's Monthly Price Monitor provides these comparisons for prices farmers received between January 1981 and December 1989:

Corn $3.32 and $2.30 per bushel, wheat $4.22 and $4.37 per bushel, soybeans $7.54 and $5.67 per bushel, cotton 77.8 cents and 63.6 cents per pound, Choice steers $63.11 and $75.09 per hundredweight, barrows and gilts $42.36 and $50.82 per hundredweight, and broilers 52 cents and 51 cents per pound.

Total harvested acreage of corn, wheat, and soybeans was about 212 million acres in 1980 and 187 million acres in 1989. Surplus production was one of the problems of the 1980's.

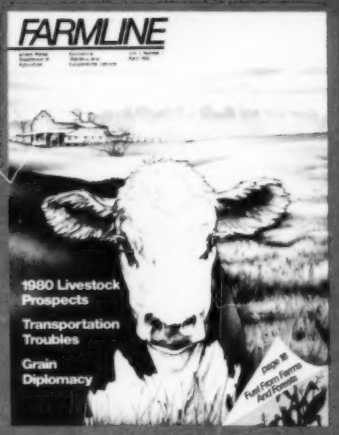
Topics covered by *Farmline* have changed over the years, although many basic issues are dealt with regularly.

Stories featured in 1980 included: the Soviet grain embargo, gasohol, rail and barge transportation, trade with China, farm safety, futures trading, machinery sales, food aid, electronic marketing, new farm technology, inflation, and of course, exports.

A sampling of 1989 topics shows: Third World debt, the Export Enhancement Program, irrigation subsidies, grazing fees, rice marketing, specialty produce, South Korea, Eastern Europe, the Soviet Union, low-input farming, the drought, rural development, environmental goals, the egg industry, crop insurance, and horticulture.

One noticeable change in the magazine is the addition of more charts, graphs, photographs, and other graphic elements since the early years. And *Farmline* now regularly provides its readers with publication schedules of the numerous ERS reports and a listing of names and phone numbers of economists and analysts who can provide our readers more specific information on just about any agricultural or rural topic.

Farmline is a "popular," as opposed to technical, publication. Its stories are written in newspaper style. Farm publications and news services are encouraged to reprint stories and graphs from the magazine, and are furnished such materials through the Farmline News Service.



Objectivity is an important part of the *Farmline* way of presenting information. The ERS and USDA leadership is committed to the principle that all viewpoints on an issue should be presented because effective decisionmaking depends on an impartial appraisal of all the pertinent information.

A basic goal of *Farmline*, from the beginning, has been to make economic information available to everyone, especially those not trained in economics, and to make it understandable and easy to use.

Nothing pleases the magazine's editors and writers more than hearing someone say, after reading a *Farmline* story, "Now I understand what that issue is all about."

We hope we'll keep on hearing such comments, in our second decade and on into the future. □

After Ceausescu, Romania Seeks Food

Romania wants more food for its people. The country's economy, geared by the former totalitarian government to provide farm products mostly for export, now cannot satisfy domestic needs even at rationed levels.

Early this year, Romania's new government, formed in December, distributed lists of "urgently needed" food supplies to foreign governments. It is making a particular effort to acquire meat and dairy products for residents of major cities, reports USDA analyst Miles Lambert, formerly of the Economic Research Service, who has been monitoring the news from Romania.

Although Romania temporarily stopped food exports, the Soviet Union, which has been a major market for Romanian meat and dairy exports, has announced that it will continue to supply oil and gas without asking for agricultural commodities in exchange.

In February, the United States declared Romania a "friendly country," making Romania eligible for concessional sales under Public Law 480, the Food for Peace program. Subsequently, U.S. Secretary of State James Baker, on a visit to Bucharest, announced that a food program valued at $80 million will go to Romania in concessional sales and donations.

Slain dictator had paid off foreign debts with farm products. Now, the country should be a good credit risk for food sales.

On March 13 the United States and Romania signed two food aid agreements under P.L. 480. Under the concessional sales provision, Romania will receive 185,000 tons of feed grains. Under the grants provision, the country will receive 315,000 tons of feed grains and 7,500 tons of butter. The feed grains will be made available both to private farmers and to state and cooperative farms.

Also, the media reports that U.S. exporters are arranging to sell Romania substantial quantities of meat and dairy products.

Romania's problems with food started during the regime of the overthrown Communist dictator, Nicolae Ceausescu. "Instead of moving toward a market economy, as many other East European countries have done in recent years, the Ceausescu government was not only resisting Soviet President Mikhail Gorbachev's reform initiative, it was bent on doing just the opposite," says Lambert. "The government sought to eliminate the private sector and put agriculture completely under centralized administration."

One of the reasons the Ceausescu government held agriculture under such tight control was that it was selling farm products abroad for hard currency. The regime wanted to pay off the country's hard currency debt by 1990, and it was doing this by shorting its own people's food supply, says the analyst.

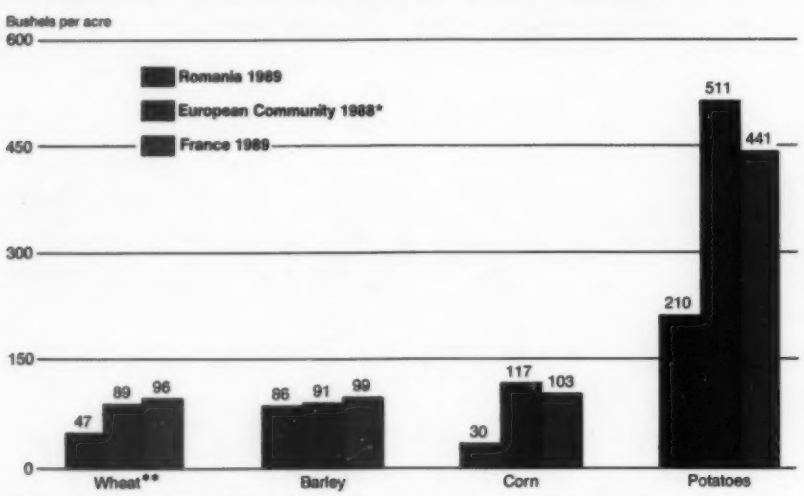
Lambert says Romanian meat consumption eroded because of the forced exports. Consumption was down to an estimated 114.4 pounds per capita in 1988, less than USDA estimates for 1980 of 132 pounds, then the lowest in Eastern Europe.

"Food was rationed," Lambert says, "but it is certain that actual supplies did not meet the level required for rationed distribution. In some urban areas, meat consumption may have been down to less than 44 pounds per capita. There have been wide discrepancies in regional and seasonal consumption of meat."

Romania proposes to pay for food and feed imports with nonfood exports, says Lambert. However, the new government has allocated $175 million to pay for imports of consumer goods, including high-value foods. Lambert says that Romania should be a good credit risk for future food imports since it has paid virtually all of its foreign debts.

Trade with the United States likely will increase if Romania is reinstated with Most Favored Nation (MFN) status. When the

Yields for Major Crops in Romania Are Far Below Western European Levels



*Excludes Spain and Portugal. **Includes rye for Romania; refers to soft wheat and spelt for EC and France.

Sources: Foreign Broadcast Information Service December 31, 1989 (Romania)
Eurostat: Crop Production 3/89 (EC and France)

Ceausescu government renounced the status in 1988 after holding it for 13 years, it was the leading East European exporter to the United States. The Ceausescu government had called the U.S. trade law's freedom-of-emigration requirement for MFN status an interference in internal affairs. Lambert says the action forestalled an embarrassing revocation by the U.S. Congress on the grounds of Romanian human rights violations.

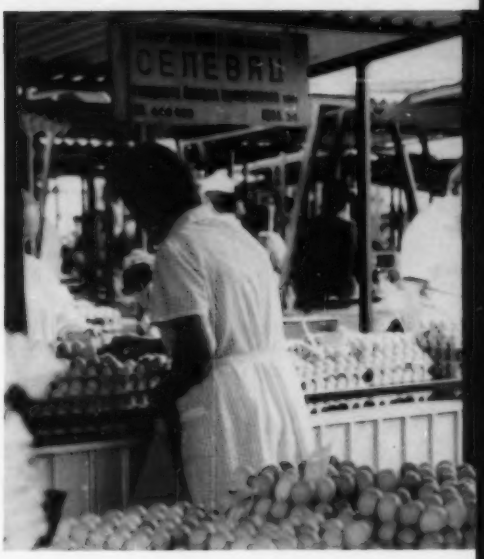
The new Romanian government will permit free emigration, which is required under the Jackson-Vanik Amendment to the U.S. Trade Act of 1974. Lambert reports that Romania has requested the United States consider reinstating its MFN status.

Future Romanian agricultural imports will likely be buoyed by consumer subsidies, says the analyst. Fearing uncontrolled inflation, the new government has established retail food prices in state retail stores to "avert profiteering," says Lambert.

Crumbling Farm Base

Romania could produce sufficient food for itself while having substantial exportable surpluses, says Lambert. However, after the damage done by the Ceausescu government, the analyst says it is unclear to what extent its potential can be achieved in the 1990's.

Yields for most crops in Romania are the lowest in Eastern Europe and far below Western European levels, says the analyst. Most of the fertilizers, particularly the nitrogenous ones, were exported, thus crops received too little fertilizer. Annual fertilizer applications had remained in the range of 88 to 101 pounds per acre since the late 1970's. Elsewhere in Eastern Europe the levels were 176 to 308 pounds. Although



Trading Relationships Fluctuated Under Old Government

Because of the Ceausescu government's emphasis on exports, Romanian trade with the Mideast flourished during that period, particularly for timber, food, and machinery, despite shortages of food at home, says ERS economist John Parker.

Exports of livestock products peaked in the early 1980's to the markets dominated by private importers, like Saudi Arabia and Kuwait.

Romania also used trade agreements to develop significant trade with most countries in the Mideast and North Africa. Its exports fluctuated, however, as it struggled to provide adequate supplies. For many items the trade would rise to a high level and then decline or stop as importers shifted from Romania to more efficient suppliers.

For example, Romania was a leading supplier of sunflowerseed oil to Algeria until that nation shifted to the European Community (EC) and then to the United States. Like other importers, Algeria wanted long-term, reliable supplies, prices, and credit guarantees. After 1986 Algeria dropped its trade agreements with Romania and shifted entirely to cash suppliers in the EC, the United States, and Argentina.

Egypt was Romania's top Mideast market in 1987 with imports valued at $460 million. Continuing strong demand for Romanian products kept the value at a high level during 1988 and 1989, says Parker. Egypt's agricultural imports from Romania had declined in 1985 to only $269,000 when imports from the United States, the EC, and Australia were rising rapidly.

But as U.S. P.L. 480 financing (aid to developing countries) was reduced, Egypt returned to Romania for a considerable portion of its agricultural imports such as butter and frozen poultry. As a result, Egypt's agricultural imports from Romania in 1986 soared to $28.3 million, a hundredfold increase, and advanced further to $52 million in 1987, nearly doubling again.

Turkey's agricultural imports from Romania declined from $11 million in 1983 to $2.6 million in 1985, then rebounded to $4.5 million in 1986. The decline was caused by a struggle among Iran, Iraq, and Libya to get a greater share of Turkey's petroleum imports. Romania lost not only its strong position as petroleum supplier to Turkey, but also its strong credit standing with Turkey.

Surprisingly, Saudi Arabia may become a new source of Romania's food imports, says Parker. Romania may be a good prospect for Saudi exports of 100,000 tons of wheat in 1990. Also, Saudi Arabia could export eggs, dates, seasonal vegetables, and fruit juices to Romania.

exports of fertilizer can be scaled back, the cost of importing raw materials for fertilizer production will be prohibitive, says Lambert.

Low crop yields in Romania are also the result of too little irrigation and drainage. Canals are often silted, and soils salinized. In recent years investments to extend irrigated areas were cut sharply.

However, Lambert says that funds for drainage, irrigation, and other land improvements are likely to be scarce over the next several years because Romania will be trying to retool its industries. Much of its machinery deteriorated as a consequence of Ceausescu's policy of minimizing imports.

Romania's livestock production also suffered in recent years because of poor harvests, decreased imports of feed grains, and poor feeding practices. Included in Romania's "urgently needed" list is 1 million tons of feedstuffs, including 300,000 to 400,000 tons of soybean meal or equivalent.

Some organizational measures have already been taken to undo the negative effects of the Ceausescu era on agriculture, says Lambert. The Ministry for Contracting and Acquisition of Agricultural Produce, through which Ceausescu's food export plans were funneled, has been dissolved. Its function has been transferred to other ministries that will align procurement with domestic needs. For example, the Central Department for Fodder Concentrates has been transferred to the Ministry of Agriculture and Food Industry, which will have information to ensure sufficient feed for livestock.

Measures particularly meant to encourage the private sector have also been announced. Land and farm inputs will be more available to private producers, and they may sell their output on the open market at any price. Private farmers now produce 44 percent of all meat for domestic consumption, and 60 percent of milk, 40 percent of vegetables, and 56 percent of fruit. □

[Based on information provided by USDA analyst Miles Lambert, formerly with the Economic Research Service, and economist John Parker of the Agriculture and Trade Analysis Division, Economic Research Service.]

Shopping List Covers Wide Range

Romania's list of "urgently needed" food supplies includes about 35 commodities.

Frozen meat	300,000 tons
Canned meat	30,000 tons
Vegetable oil	150,000 tons
Butter or margarine	30,000 tons
Cheese	50,000 tons
Eggs	500,000 million
Potatoes	100,000 tons
Rice	50,000 tons
Sugar	100,000 tons
Oranges	100,000 tons
Lemons	50,000 tons
Tangerines	20,000 tons
Grapefruit	10,000 tons
Olives	15,000 tons
Raisins	3,000 tons
Peanuts	2,000 tons
Canned green beans	30,000 tons
Canned vegetables and fruit	30,000 tons
Fruit juice	10,000 tons
Wine	5,000 tons

REPORTS IN THE NEWS

Study Compares Wheat Farms

U.S. wheat farms vary considerably from state to state and region to region.

Planted wheat acreage, for example, ranged in 1986 from 52 acres per farm in Illinois to 458 acres per farm in Montana.

This report provides a great deal of information about representative farms in 12 major wheat producing states: Colorado, Idaho, Illinois, Kansas, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, and Washington.

The basic information reported is from the 1986 Farm Costs and Returns Survey, which was conducted by USDA in February and March of 1987. Some comparisons also are made with data from the 1982 Census of Agriculture.

The study focuses on commercial-size farms by excluding those with total annual farm sales of less than $40,000. The report provides information in the categories of farm income and expenses, land use and tenure, assets and debt, and farm labor.

The Northern Plains (Minnesota, Montana, North Dakota, and South Dakota) had the largest share of U.S. wheat acreage and production in 1987 with 31 percent of planted acreage, 36 percent of harvested acreage, and 30 percent of total production.

The top six wheat states in 1986, according to the report, were Kansas with 16.1 percent of total U.S. production, North Dakota 14.0 percent, Oklahoma 7.2 percent, Montana 6.6 percent, Texas 5.7 percent, and Washington 5.6 percent.

Representative U.S. Wheat Farms by Michael E. Salassi. Published January 1990; 72 pages; $11 ($13.75 to non-U.S. addresses).

CRP Analyzed for Possible Benefits

Potential benefits from the Conservation Reserve Program (CRP) include increased soil productivity and ground water supplies and improved water quality, air quality, and wildlife habitats.

The authors of this report say the CRP could generate $6 billion to $14 billion in benefits to natural resources. The magnitude and distribution of these benefits could be altered by emphasizing different goals for the CRP.

At the time of the analysis, about 23 million acres of cropland had been enrolled in the CRP—which has a goal of 45 million acres. The authors developed three scenarios for the enrollment of the remaining acres.

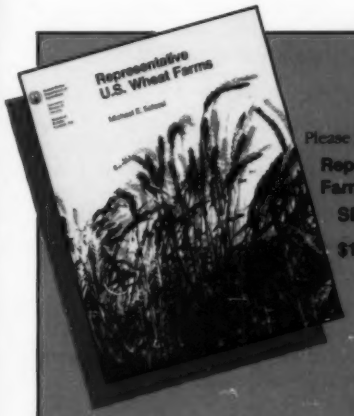
The first, or baseline, scenario assumed the same pattern that had been followed in the enrollment of the first 23 million acres. Benefits of this scenario would range between $6 billion and $13.6 billion.

The second, or forestry, scenario assumed a redirection of CRP enrollment toward areas where trees would likely be planted on the retired cropland. Benefits would range between $7.2 billion and $15.7 billion.

The third, or environmental, scenario assumed a redirection of enrollment toward areas sensitive to environmental degradation. Benefits would range between $6.8 billion and $14.9 billion.

Natural resources benefits vary widely among regions when different patterns of enrollment are examined. For example, the Lake States would realize the greatest benefits in the first two scenarios, and the Corn Belt would show the greatest benefits in the third.

Natural Resources and Users Benefit from the Conservation Reserve Program by Marc Ribaudo, Daniel Colacicco, Linda Langner, Steven Piper, and Glenn Schaible. Published January 1990; 52 pages; $8 ($10 to non-U.S. addresses).



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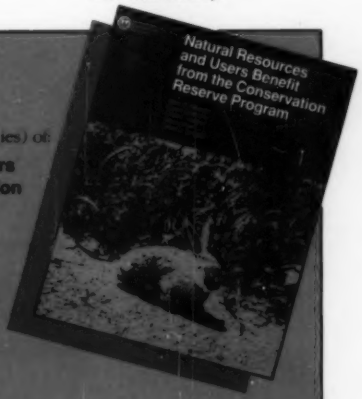

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Technology Boosts Shrimp Farming

Improved technology has enabled shrimp farmers to gain a larger share of the world market—26 percent in 1989, up from 2 percent in 1981.

The lure of export earnings is one reason behind the rapid development of shrimp farming in China, Ecuador, Indonesia, Taiwan, and several other countries, according to analyst Gary Vocke of USDA's Economic Research Service.

The output of ocean-harvested shrimp has been relatively constant in recent years, but farm production has increased.

Of the 4.85 billion pounds of shrimp sold on the world market in 1989, more than one-fourth came from aquaculture (seafood farming). Some 15 percent of the total supply of shrimp is consumed in the countries where it is raised or caught and therefore does not enter export markets.

The United States is at a comparative disadvantage in shrimp farming, Vocke says. The climate in this country is generally not warm enough, suitable seacoast land is expensive, and labor costs are substantially higher than in the leading shrimp-farming countries.

China has become the leading supplier of shrimp to the United States.

If increased world production results in lower prices, consumers would benefit. The shrimp farming boom of recent years has kept prices relatively stable, according to ERS economist Dave Harvey.

Only Japan imports more shrimp than the United States. U.S. imports totaled more than 500 million pounds in 1988, valued at $1.7 billion. Shrimp accounted for over 30 percent of the value of U.S. fish and shellfish imports. In 1986-1988, the import price for all shrimp averaged about $3.55 per pound.

During the first 6 months of 1989, U.S. shrimp imports totaled 231 million pounds, valued at $794 million. This was a 3-percent increase in quantity over a year earlier.

China has become the leading supplier of shrimp to the United States, providing 21 percent (104 million pounds) of all shrimp imported in 1988. Just 2 years earlier, China's exports to the United States were less than 21 million pounds.

China, Ecuador, Mexico, and Taiwan accounted for 57 percent of U.S. shrimp imports in 1988. Of the four countries, only Mexico secures its shrimp primarily from ocean catch. Nearly all imported shrimp is frozen.

U.S. per capita consumption of shrimp was an estimated 2.4 pounds in 1988. By contrast, estimated per capita consumption in 1989 was 70 pounds of beef, 68 pounds of chicken, and 63 pounds of pork.

However, shrimp consumption in this country did rise by 80 percent in 1980-88, with much of the increase possible because of imports. More than three-fourths of total consumption is now supplied by imports.

Prices Vary by Size

Shrimp are usually graded by size and sold by count (the number per pound). Counts in the seven or eight basic classes range from 10 to more than 70 per pound. The smallest shrimp normally are cold water shrimp. Due to changes in supply and demand, prices of some sizes may be rising while prices of other sizes are falling.

The U.S. government does not specifically monitor shrimp prices, since shrimp is a minor item in the long list of foods purchased by consumers. Supermarket prices for shrimp are often in the range of $5 to $10 a pound, according to a check of recent advertisements in several U.S. metropolitan newspapers.

In comparison, broilers averaged 85 cents a pound, pork products $1.83 a pound, and Choice beef $2.55 a pound, nationwide, in 1988, according to the Consumer Price Index.

Farm-raised shrimp are often the same species as those caught in the oceans by fishermen. It is easier to maintain quality with farm shrimp, Vocke says, because they can be moved immediately to a packing plant.

Farming Operations Vary Widely Around the World

Shrimp-farming methods vary from the traditional system of basically gathering what Nature provides to capital-intensive farms requiring artificial feed, aerated water, and technical expertise.

The traditional method, still practiced in many countries including India and Indonesia, requires little management, because the shrimp get their food from natural sources in ponds along bays and tidal rivers.

When the coastal water has a high density of young shrimp, the farmers open the gates to their ponds and impound the young shrimp, then wait for them to grow to maturity. Production costs are low, but yields are low, too.

Even in this simple system, the ponds must be periodically flushed by the tide to remove bacteria and algae that can deplete oxygen supplies for the shrimp.

To raise yields, farmers must increase the density of shrimp in the ponds. This is done by stocking with young shrimp raised in hatcheries or caught in the ocean. The greater density then requires pumps to exchange the water. For pumping to be effective, ponds must be smaller—usually not much larger than 1 acre.

Shrimp yields in these smaller ponds usually range from 500 to 5,000 pounds per acre per year, sarys ERS analyst Gary Vocke. The larger outputs are achieved through fertilization to increase the growth of the natural foods (microscopic plants and animals) eaten by the shrimp.

Artificial shrimp feeds cost as much as $750 a ton if they have high proportions of fishmeal. However, Vocke says, shrimp feed costs can be reduced to $300-$400 a ton if plant proteins such as soybean meal are substituted, at least in part.

Increased feeding and greater intensity of production can lead to water quality problems. Waste products and uneaten feed can promcte growth of bacteria and algae. These organisms, in turn, consume dissolved oxygen in the water and thus inhibit the growth of the shrimp.

The decomposition of the feed and the wastes also produces byproducts toxic to the shrimp, Vocke says.

As the intensity of production increases, so does the proportion of pond water that must be exchanged daily with clean water. While tidal movements may change as little as 5 percent of the pond water, semi-intensive production may require a 30-40 percent change and intensive production 60-100 percent. Aerators also help add oxygen to the water and move surface water to the bottom of the pond. The movement of the water helps destroy the toxins by exposing them to aerobic bacteria and sunlight.

— Photo courtesy of Safeway stores

Vocke notes that careful management of the water quality is a necessity. "If water quality is very far from optimal, the shrimp will be stressed, their growth will slow, and they will be susceptible to disease," he says.

Where artificial feed is used, shrimp require 2-3 pounds of feed to produce 1 pound of weight. This is about the same feed conversion rate as for broilers, the analyst says.

Data from a few years ago showed shrimp production costs of 25 cents to 50 cents per pound in Ecuador's non-intensive production, $2.10 to $2.40 per pound in Taiwan's intensive production, and $7.25 to $11.60 per pound in Japan's super-intensive production. Shrimp fishermen usually have lower costs than shrimp farmers.

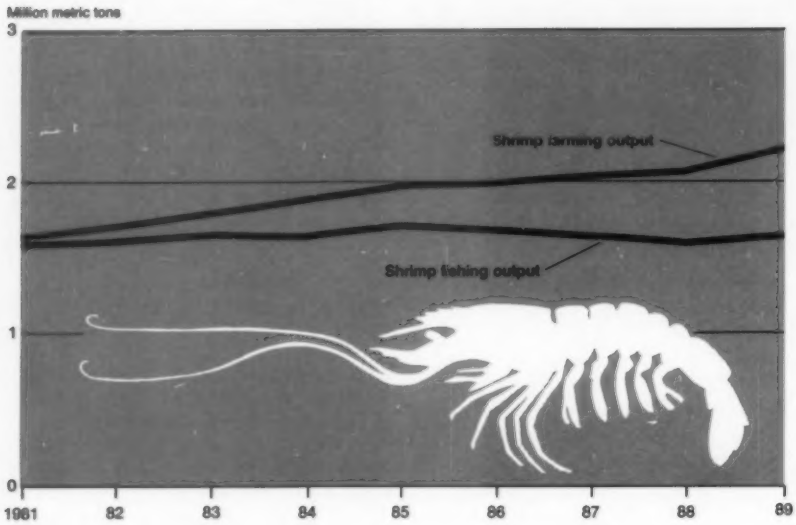
"Highly intensive farmers will be in trouble," Vocke says, "if expansion of low-cost, semi-intensive shrimp farming in China and elsewhere in Asia results in shrimp supplies outpacing demand, forcing down market prices."

Shrimp farmers also face price risks. In 1989, for example, prices for giant tiger shrimp in Southeast Asia fell from $8.50 to $4.50 per pound because of a temporary oversupply, Vocke says.

Most commercially raised shrimp grow faster and achieve better feed conversion rates in warm water. Tropical farmers thus have an advantage in world markets because they can grow shrimp year-round.

In the United States, the growing season for shrimp is 7-9 months in Texas and southern Florida and 5-7 months in other parts of the South. In Hawaii, however, shrimp are grown year-round.

Shrimp Farming Output Increased Substantially While Shrimp Fishing Output Remained Stable During the 1980's



Ocean-harvested shrimp are usually kept on ice for extended periods before being delivered to packing plants.

Shrimp farmers are considered more reliable suppliers to export markets because they are not dependent on fluctuating availabilities of shrimp as are fishermen, Vocke says. However, major producers such as Taiwan and Ecuador have run into some production problems in recent years.

Diseases on Taiwan's shrimp farms drastically cut production, with exports falling from 50,000 tons in 1987 to less than 8,000 tons in 1988. In mid-1989, about half of the shrimp ponds in Ecuador were empty because shifting ocean currents caused a shortage of young shrimp.

Traditional shrimp farming, practiced for hundreds of years, consists mainly of trapping shrimp in coastal ponds and growing them there. But in the late 1970's and early 1980's, high export prices encouraged farmers to raise shrimp yields by stocking their ponds with young shrimp caught by fishermen. With higher densities of shrimp in the ponds, artificial feeding was required. Pumps and aerators also were needed to maintain water quality, Vocke says.

The need for a reliable supply of young shrimp to stock ponds also stimulated production of shrimp larvae, according to Vocke. The first shrimp hatcheries limited their activities to spawning female shrimp caught in the ocean. Scientific advances made such hatcheries feasible, but other problems remain.

More hatcheries now raise and mate shrimp in captivity, Vocke says, but because that process is costly, most hatchery-spawned shrimp still are from females caught in the ocean.

The higher cost of hatchery-produced shrimp larvae is due, in part, to the expense of feeding them through a series of larval molts (steps in the maturation process). Different feeds are required at each of the five developmental stages.

The plant and animal foods usually eaten by the shrimp larvae are expensive to grow, requiring both skilled labor and special equipment, Vocke says. Replacing these foods with lower cost, grain-based feeds is difficult because nutrients in the manufactured feeds dissipate into the water before the food is consumed.

Researchers are hoping to encapsulate shrimp feed in a substance that will break down only in the digestive systems of the larvae, Vocke says.

Such an advancement could create the potential for breeding programs to improve shrimp's rate of growth, rate of feed conversion, disease resistance, and size.

Such technological advances will be used mainly in other countries, however, because that is where shrimp farming is flourishing. U.S. shrimp farmers produced only 2.2 million pounds in 1988, while the nation's shrimp fleet caught 331 million pounds.

"Even the most optimistic projections for the U.S. industry indicate that it will never produce more than a small percentage of total domestic consumption," Harvey says.

One area of opportunity for the U.S. shrimp industry could be markets for live shrimp, Harvey says. Premium prices would have to be charged to make live shrimp sales profitable, he adds. Shrimp farms in South Carolina and Texas are within shipping distance of major population centers.

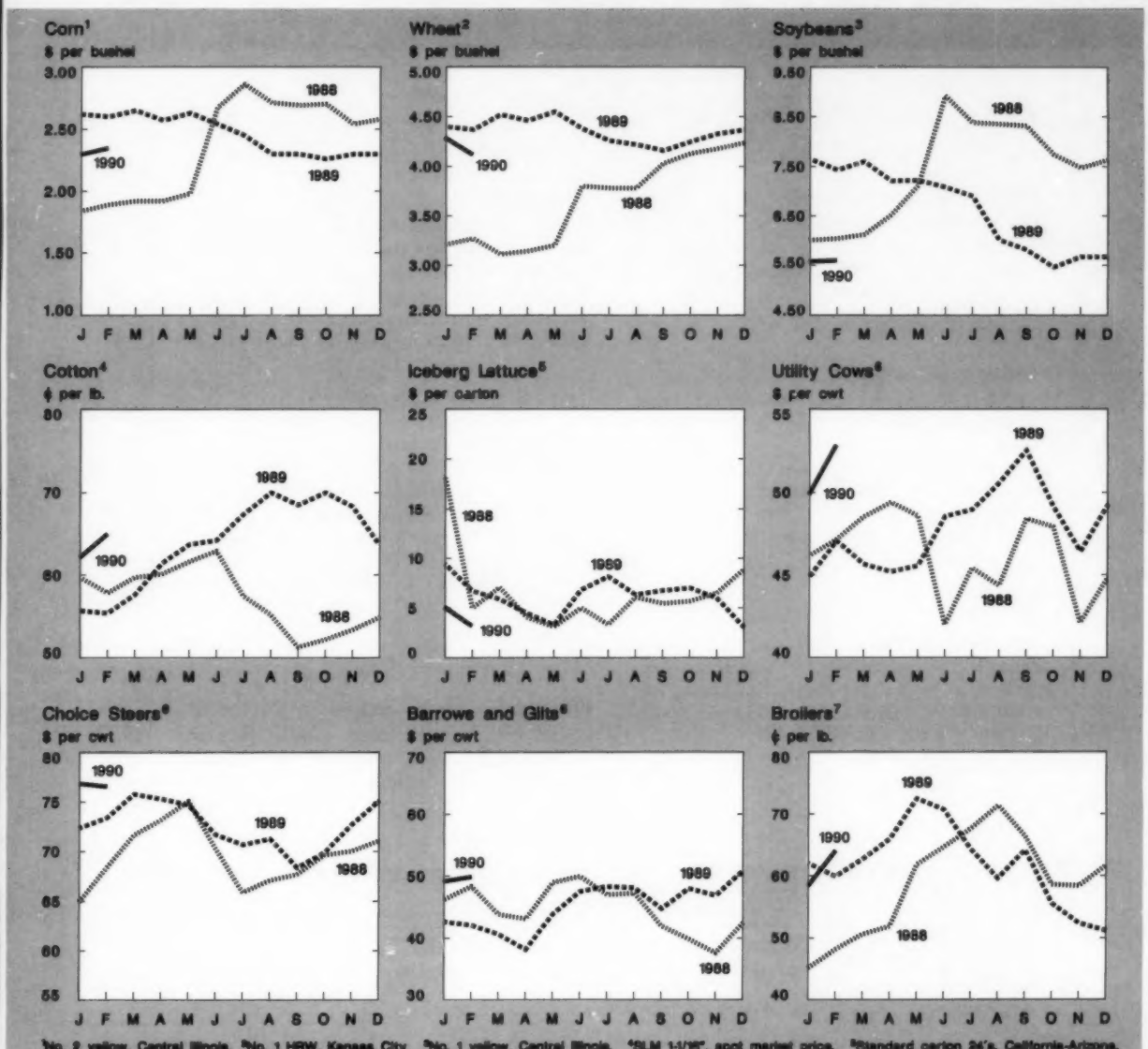
A second area of specialization could be hatchery operations. These are suitable for the United States because they are indoors, require minimal space, and place an emphasis on technology. The larvae could be grown to maturity in regions that have a comparative advantage in climate, land, and labor costs.

The United States also has been providing equipment and technical expertise to shrimp-farming operations in other countries. And U.S. firms have been investing in shrimp farms around the world. □

[*Based primarily on information provided by economists Gary Vocke of the Agriculture and Trade Analysis Division and Dave Harvey of the Commodity Economics Division, Economic Research Service.*]

Monthly Price Monitor

USDA's February 1990 inflation-adjusted index of farm prices decreased 0.6% from January but was 2.7% above its year- earlier level. Corn rose to $2.35 per bushel, the highest level since last July. Wheat prices were down 17¢ to $4. 12, the lowest since September 1988. Soybeans, at $5.59 per bushel, were up 2¢ from January's average. Cotton increased 2.8¢ to 65¢ per pound. Iceberg lettuce lost $1.86 to $3.25 per carton. Utility cows increased $2.91 to $52.79 per hundredweight, reaching the $50 range the first time since September. Choice steers decreased 29¢ to $76.60 per hundredweight. Barrows and gilts lost 71¢ per hundredweight to $49.93. Broilers rose 5.6¢ to 64¢ per pound.



[1]No. 2 yellow, Central Illinois. [2]No. 1 HRW, Kansas City. [3]No. 1 yellow, Central Illinois. [4]SLM 1-1/16", spot market price. [5]Standard carton 24's, California-Arizona. [6]Omaha. [7]Wholesale, New York. All prices shown are monthly averages.

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